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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,191	06/23/2006	Takeki Shirai	062714	3849
38834 7590 10/12/2010 WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP 1250 CONNECTICUT AVENUE, NW SUITE 700 WASHINGTON, DC 20036				
EXAMINER WAITS, ALAN B				
ART UNIT PAPER NUMBER 3656				
NOTIFICATION DATE DELIVERY MODE 10/12/2010 ELECTRONIC				

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentmail@whda.com

# Office Action Summary

**Application No.**

10/584,191

**Applicant(s)**

SHIRAI ET AL.

**Examiner**

ALAN B. WAITS

**Art Unit**

3656

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 5-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 5-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/10/2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Request for Continued Examination***

1. The request filed on April 13, 2010 for a Continued Examination (RCE) is accepted and a continued prosecution application has been established. An action on the RCE follows.

### ***Claim Objections***

2. Claim 1 is objected to because of the following informalities: Claim 1 recites "the movable member is formed with a loaded rolling member rolling groove" and then recites "to each of which two rows of the loaded rolling member rolling grooves are formed". Either both should be plural or singular, but not a combination thereof. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacob USP 4974969 in view of Teramachi USP 4629337.

Jacob discloses a similar device comprising:

#### **Re clm 1, 6 and 8**

- A hollow track member (1, fig 1) having a slit (bottom) extending in an axial direction thereof

- A movable member (2, fig 2) disposed inside the track member to be movable along the track member
- A drive mechanism (col 2, ln 25-35) for moving the movable member along the axial direction of the track member
- The track member has, in a section perpendicular to the axial direction of the track member, a guide portion (portion where balls touch 2 and 1, fig 2) for guiding movement of the movable member and at least two extensions opposing to each other
- Each of the extensions extending from the guide portion so as to cover the movable member
- The slit is formed between the opposing extensions (fig 1)
- A width of the slit of the track member is narrower than a width of the movable member
- An entire exposed outer periphery of the track member has a substantially circular-arc shape in the section perpendicular to the axial direction of the track member
- The track member is formed with a rolling member rolling groove (8 where elements 4 roll, fig 2) extending in the axial direction thereof as the guide portion
- A number of rolling members (4, fig 2)
- The two rows of the loaded rolling member rolling grooves extend in the axial direction of the track member

- A first row of the two rows of the loaded rolling member rolling grooves is positioned in vertical direction with respect to a second row of the two rows of the loaded rolling member rolling grooves (fig 1)

Jacob does not disclose:

- The movable member is formed with a loaded rolling member rolling groove opposing to the rolling member rolling groove formed to the track member
- The movable member has both side surfaces to each of which two rows of the loaded rolling member rolling grooves are formed
- A number of rolling members are interposed between the rolling member rolling groove of the track member and the loaded rolling member rolling groove of the movable member to be rollable therebetween

Teramachi discloses a similar device comprising:

- The movable member (2, fig 1) is formed with a loaded rolling member rolling groove (21, fig 1) opposing to the rolling member rolling groove formed to the track member
- The movable member has both side surfaces to each of which two rows of the loaded rolling member rolling grooves are formed (fig 1)
- A number of rolling members are interposed between the rolling member rolling groove of the track member and the loaded rolling member rolling groove of the movable member to be rollable therebetween (fig 1)

Since both Jacob and Teramachi teach an actuating device, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the movable member of Teramachi into the device of Jacobs and provide:

- The movable member is formed with a loaded rolling member rolling groove opposing to the rolling member rolling groove formed to the track member
- The movable member has both side surfaces to each of which two rows of the loaded rolling member rolling grooves are formed
- A number of rolling members are interposed between the rolling member rolling groove of the track member and the loaded rolling member rolling groove of the movable member to be rollable therebetween

to achieve the predictable results of preventing relative radial motion between the track member and the movable member.

**Re clm 2**, Jacobs further discloses:

- The slit is formed at only one portion in a circumferential direction of the track member in a section perpendicular to the axial direction of the track member (fig 1)

5. Claims 1, 2, and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai US 2002/0144561 in view of Jacob USP4974969.

Nagai discloses a similar device comprising:

**Re clm 1, 6 and 8**

- A hollow track member (12a, 12b and 12c, fig 2) having a slit (top) extending in an axial direction thereof
- A movable member (18, fig 2) disposed inside the track member to be movable along the track member
- A drive mechanism (28, fig 2) for moving the movable member along the axial direction of the track member
- The track member has, in a section perpendicular to the axial direction of the track member, a guide portion (portion where balls 76 touch 12c and 18, fig 3) for guiding movement of the movable member and at least two extensions opposing to each other
- The slit is formed between the opposing extensions (12c and 12 b, fig 2)
- The track member is formed with a rolling member rolling groove (60a and 60b, fig 3) extending in the axial direction thereof as the guide portion
- The movable member is formed with a loaded rolling member rolling groove opposing to the rolling member rolling groove formed to the track member (62a and 62b, fig 3)
- The movable member has both side surfaces to each of which two rows of the loaded rolling member rolling grooves are formed (fig 9)
- A number of rolling members (76, fig 3) are interposed between the rolling member rolling groove of the track member and the loaded rolling member rolling groove of the movable member to be rollable therebetween (fig 3)

- The two rows of the loaded rolling member rolling grooves extend in the axial direction of the track member (fig 9)
- A first row of the two rows of the loaded rolling member rolling grooves is positioned in vertical direction with respect to a second row of the two rows of the loaded rolling member rolling grooves (fig 9)

Nagai does not disclose:

- Each of the extensions extending from the guide portion so as to cover the movable member
- A width of the slit of the track member is narrower than a width of the movable member
- An entire exposed outer periphery of the track member has a substantially circular-arc shape in the section perpendicular to the axial direction of the track member

Jacob teaches a similar actuator/linear bearing device comprising:

- Each of the extensions extending from the guide portion so as to cover the movable member (bottom portion of 1 that encloses 2, fig 1 and 2)
- A width of the slit of the track member (1, fig 1) is narrower than a width of the movable member (2, fig 1)
- An entire exposed outer periphery of the track member has a substantially circular-arc shape in the section perpendicular to the axial direction of the track member (fig 1)



Since both Nagai and Jacob teach an actuator/linear actuator, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the outer shape of the track member of Jacob into the device of Kawaguchi and provide:

- Each of the extensions extending from the guide portion so as to cover the movable member
- An entire exposed outer periphery of the track member has a substantially circular-arc shape in the section perpendicular to the axial direction of the track member

to achieve the predictable result better protecting the inner moving member from foreign debris and other machine parts as well as to more evenly distribute the load between the track member and the movable member.

**Re clm 2, Jacob further discloses**

- The slit is formed at only one portion in a circumferential direction of the track member in a section perpendicular to the axial direction of the track member

**Re clm 7**

- The drive mechanism is provided with a screw portion (32, fig 2) formed to the movable member and a screw shaft (28, fig 2) to be screw engaged with the screw portion
- The screw shaft penetrating the movable member
- The screw shaft has a center line coincident with a center line of an output shaft of a drive source (14, fig 2) rotating the screw shaft

- The drive source has an outer substantially circular shape in a section perpendicular to the axial direction of the track member (fig 2)

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai US 2002/0144561 in view of Jacob USP4974969 as applied to claim 1 and 2 above, and further in view of JP 61-29163.

Nagai in view of Jacob discloses all the claimed subject matter as described above.

Nagai in view of Jacob does not disclose:

- the track member is provided with a cover member expandable or contractible in the axial direction of the track member so as to entirely cover the track member in the section perpendicular to the axial direction of the track member
- a portion of the movable member projecting over the slit of the track member penetrates the cover member.

JP 04-164540 teaches:

- the track member is provided with a cover member (16, fig 1) expandable or contractible in the axial direction of the track member so as to entirely cover the track member in the section perpendicular to the axial direction of the track member (as shown in fig 1)
- a portion of the movable member (top of 14, fig 1) projecting over the slit of the track member penetrates the cover member

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Nagai in view of Jacob and provide:

- the track member is provided with a cover member expandable or contractible in the axial direction of the track member so as to entirely cover the track member in the section perpendicular to the axial direction of the track member
- a portion of the movable member projecting over the slit of the track member penetrates the cover member.

for the purpose of protection the shaft from dirty and debris.

#### ***Response to Arguments***

7. Applicant's arguments with respect to claims 1, 2 and 5-8 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALAN B. WAITS whose telephone number is (571)270-3664. The examiner can normally be reached on Monday through Friday 7:30 am to 5 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on 571-272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alan B Waits/  
Examiner, Art Unit 3656

/Richard WL Ridley/  
Supervisory Patent Examiner, Art Unit 3656